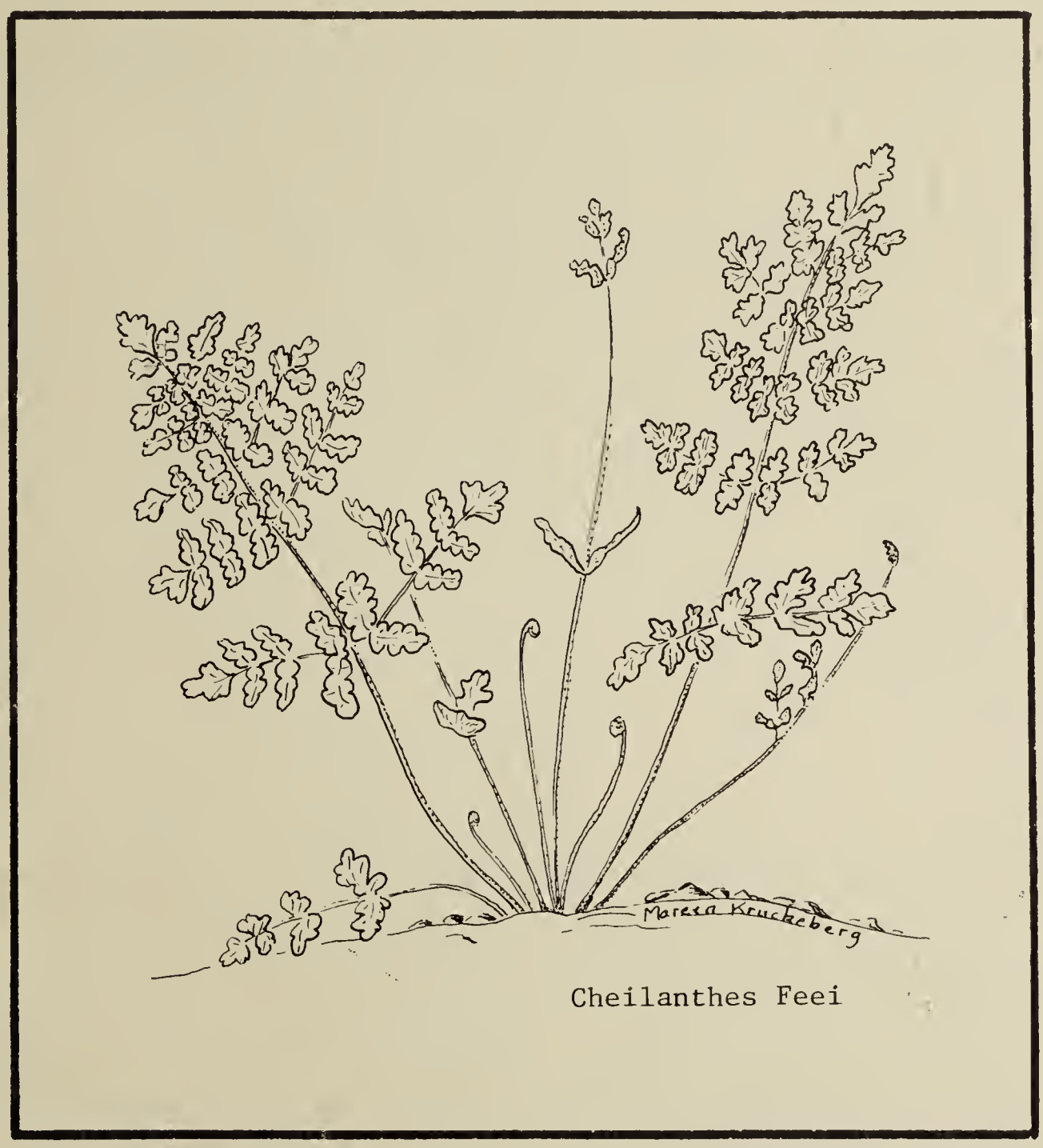
Horticulture Northwest

Journal of the Northwest Ornamental Horticultural Society



Cheilanthes Feei

Volume 8 Number 2 Summer 1981

Horticulture Northwest is published quarterly by the Northwest Ornamental Horticultural Society. Yearly membership dues start at $15.00. Address communications regarding membership to:

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Seattle, Washington 98195

We welcome original articles, artwork and black and white photographs from contributors. Back issues of the Journal are available to members at $2.50 each.

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Horticulture Northwest

Volume 8 Number 2
Summer 1981

Sallie D. Allen, Editor

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Cheilanthes Feei
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CLEMATIS TANGUTICA

Marvin Black, Seattle, Washington

When we decided to name our garden, there was really no contest at all. We chose "Tanglewood" not with tongue in cheek, but with machete in hand. There is no order in the place, only exuberance; George Schenk (gentle friend!) termed this riot "a bunch of plants having a party." A San Francisco man, creator of his own memorably lavish garden, emerged from our underbrush with, "My, you certainly pack them in, don't you!" Sometimes plants must have real character to emerge triumphant at Tanglewood.

I guess that's why clematis do so well. Now, clematis are not your insipid, caged-parakeet sort of plants. They are wild-goose plants escaping pell-mell to their own freedom in even the most ordered gardens. A lot of them party in our garden, and "party" is the proper word, for they aren't lonely plants of singularly rugged character--they need friends to hold them up. Leave your sterile trellises on the store shelves; clematis want the companion branching of shrubs and small trees, even small buildings. Like little boys, they want to climb on everything in sight. Our *Clematis tangutica* shinnies up through the outraged branches of an old *Prunus laurocerasus*, English cherry-laurel. Its dangling yellow lanterns from looping growth certainly enliven that ordinary plant from July to October. These lantern-flowers, really four lemon-yellow sepals folded downward to create a sort of petal-origami lantern, are quite unlike the big flat blue, white or purple blossoms that we usually think of as clematis. Though the sepals ("petals") of *C. tangutica* can reach three to four inches long, this downward fold reduces the flower's apparent size to a disappointment for someone who'd been misled to expect great yellow cabbages hanging in the garden. The effect is not spectacular but charming, like upside-down yellow teardrops borne singly on three-inch stems all along the viny growths. The foliage is among the best of all clematis, lively glaucous green. Its pinnately compound leaflets (up to seven) have ragged toothed edges.

Another advantage of growing clematis with something else: they are not four-season plants. Some offer interest for only one season, and the companion shrub can pick up the slack for other parts of the year. A sturdy plant will handle the company without being overwhelmed. Some rhododendrons do the job, climbing roses often do, and twiggy things as *Myrica californica*, *Kolkwitzia amabilis*, *Philadelphus* species and hybrids, even lilacs if there is enough air circulation to discourage mildew.

Clematis tangutica does give two seasons of show. Its whirling-dervish seedheads are excitingly showy until winter, and through late summer it happily intersperses these green-metallic pinwheels among yellow lanterns in a wonderful magic show, all together. Word descriptions of clematis seedheads are inadequate--you must see them. Botanically, to quote Professor Whitehead, they consist of "small, single-seeded achenes, borne numerously in globose heads, and when the achenes carry long persistant styles, feathered with fine silky hairs, as in....*C. tangutica*, the plants wear a handsomeness that compares with their appearance when in flower." These

seedheads ripen and disintegrate by Thanksgiving, and seedlings are easily raised, growing quickly to flowering size. Since the plant usually grown in our Pacific Northwest gardens is the species, the seedlings will be similar.

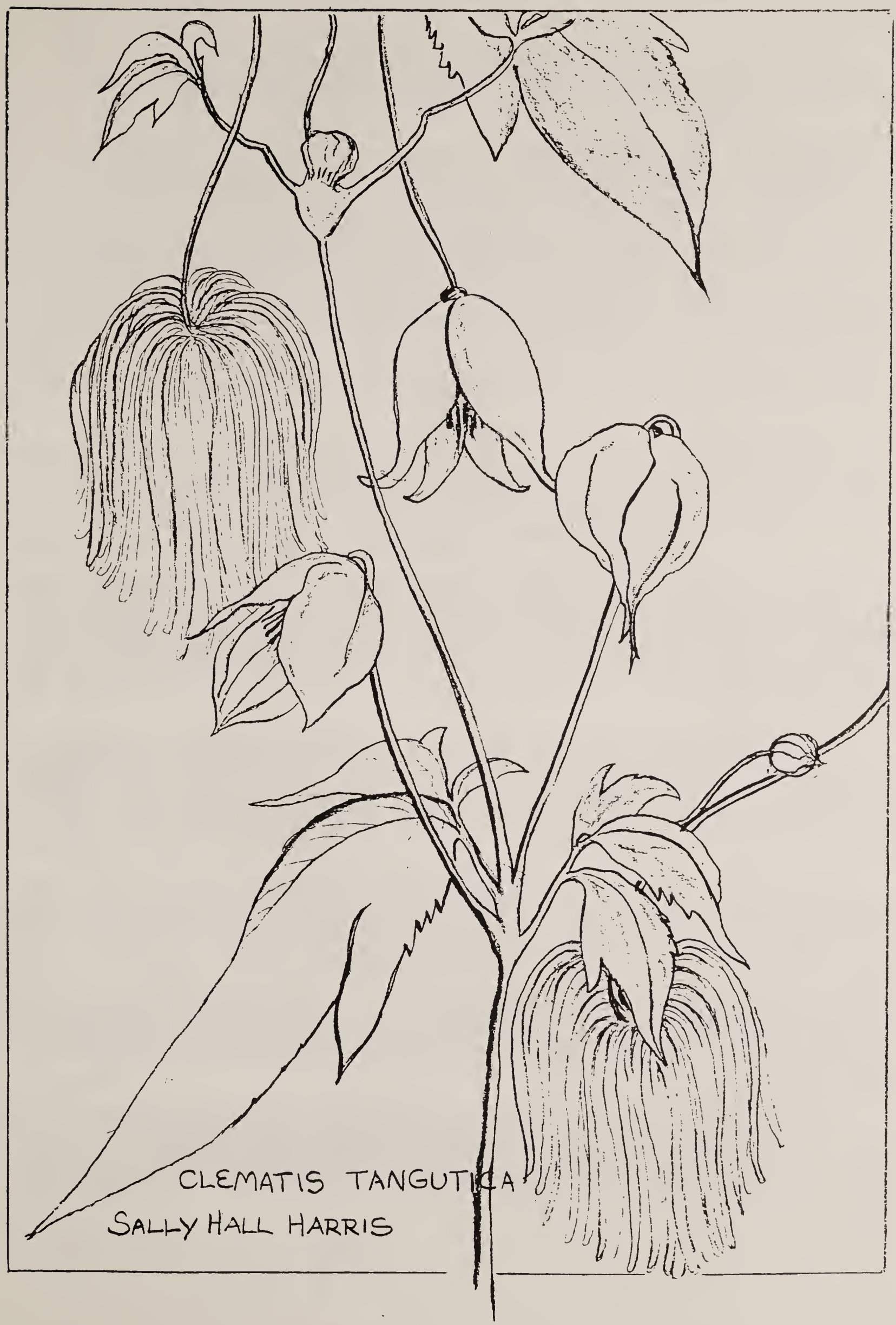
The other way to propagate this plant, also quite easy, is to take cuttings of the growths about the fourth of July, cutting up a shoot into several lengths, each with at least two bud-joints (leaf-joints), and bury these on their side under an inch of sandy compost (or alternatively, sloping at an angle--the low angle of a teeter-totter--with one joint buried and the upper exposed. They root fairly quickly, and should be potted up quickly once rooted, for the young roots will rot away again if they don't get a good meal soon. Layering is a third method of propagation.

Clematis are greedy feeders, to be really happy. Though they want good drainage they need soil moisture deep in the soil, disliking drought. Their enemies are hot sun at their roots (they want the roots cool, but the tops growing up into hot sun), slugs, and stagnant, soggy soil. When planting a clematis to climb up a vigorous host, don't plant it too near the host's hungry root system (imagine our English laurel!) but a few feet away, then contrive some way to lead the young clematis over into its new friend's house. A good support is made by buying a roll of 18 or 24-inch wide chicken-mesh wire, cutting off the length desired, and folding this lengthwise into a collar-roll. Clematis don't have tendrils like grapes or suction-cups like ivy, they climb by wrapping a twist of their new leaf-stems around something, just like a small boy hooking his arm and elbow up over a branch. A wire cage or twiggy growth nicely supplies their needs and they will quickly bury the cage under leafy growth. A bare post or pipe or piece of wire used for sweet peas won't work.

While in our climate *Clematis tangutica* appreciates a spot offering all the warm sun it can get, its Mongolian-Manchurian origins make it winter-hardy in Spokane. It is vigorous, quickly going up eight feet and capable of sprawling out to 20-foot luxury. When it gets too much luxury for you to stand, chop it back in February to any height you choose, even to two feet from ground level, and it will be back with normal flowering by fall. Unpruned, it flowers two or three weeks earlier and slowly gets brushier. In winter it looks convincingly and disgustingly dead, but new growth will leap out everywhere. Mine is thumping its chest and roaring by April (who'd have thought an English laurel could look intimidated?).

There are several yellow species, with *Clematis tangutica* better known than other lovelies like *C. orientalis* or *C. rehderiana*. Bean and some other authorities say *C. tangutica* may actually be a variety of *C. orientalis*. It has larger flowers and showier seedheads than the latter.

Christopher Lloyd writes, "The question that a nurseryman is asked more frequently than any other is 'When is the right time to plant a clematis?' It is usually asked by someone who wishes to defer the issue and doesn't feel ready to cope. He does not wish to be told that now is the moment, and yet, as clematis are nearly always pot-grown, they can, without disturbance or damage to their roots, be planted at any season."



CLEMATIS TANGUTICA

SALLY HALL HARRIS

Aha! There are shouts from the garden! Probably it's Mrs. S., who disappeared in there last Thursday. Thank God she took a lunch.

Reading on Clematis:

Clematis. Christopher Lloyd. William Collins & Sons, Ltd. c1977.
Clematis. Ernest Markham. Country Life Limited, Charles Scribner's Sons. c1935.
Clematis. Stanley B. Whitehead. John Gifford Ltd. c1959.
The Queen of Climbers. Jim Fisk. Fisk's Clematis Nursery. c1975.
Trees & Shrubs Hardy in the British Isles. W. J. Bean. John Murray. Vol. I, Eighth Edition. c1970.
Climbing Plants and Some Wall Shrubs. Douglas Bartrum. John Gifford Ltd. c1959.

A LECTURE SERIES THAT PAID OFF

Mrs. Gerald Child, Tacoma, GC (WA)

When the Tacoma GC was given the opportunity to bring programs to Tacoma from the Northwest Ornamental Horticultural Society series which has been presented in nearby Seattle for several years, the offer was enthusiastically accepted. We thought this was an excellent way to bring interesting lectures to the public as well as to afford our membership a chance to enhance our gardening knowledge.

The committee met to decide which of the scheduled programs to select, and chose initially those two which we believed would hold the widest interest. The first was entitled, "Add Edibles to Your Ornamentals," and was comprised of a panel of three highly qualified experts of diverse backgrounds. This proved, as our publicity developed, to generate a great deal of interest.

Then, knowing that a husband with a pair of clippers can do as much damage as a slug of his own size, we chose for our second program one entitled, "Control Your Garden by Pruning." This we offered at one of our regular meetings--an evening event in which our husbands were included.

A fine rapport was developed with the Federated Garden Clubs in our area, who were very supportive. The news media also proved to be interested in our program, resulting in good coverage in local newspapers and in radio and television spot announcements.

At both events our club hosted a coffee hour, giving us an opportunity to visit with all those who came. Attendance substantially exceeded our expectations, which led us to believe we had achieved a worthwhile recognition for the GCA as well as for the Tacoma GC. Even my husband came and enjoyed it!

Reprinted from the Bulletin of the Garden Club of America, Vol. 69, No. 6, April 1981

ADDING EDIBLES TO YOUR ORNAMENTALS

R. L. Ticknor, Horticulture Dept., Oregon State University

Several vegetables have foliage which can be attractive in sunny areas of ornamental plantings. Red leaved cultivars of lettuce provide a color contrast to the foliage of most woody ornamentals. A textural contrast can be obtained by growing the frilly leaved 'Salad Bowl' lettuce or endive. The cabbage family also provides color and foliage contrast effects. Many of the leaves are bluish green but purple reds are also readily available. Highly rated for foliage effect is the rhubarb variety of swiss chard with bright red petioles and dark green leaves. Rhubarb itself gives a dramatic textural contrast with its large leaves; however, the red petioles are usually hidden by the foliage. The feathery leaves of a carrot are much better adapted to a sunny area than a fern and you can eat the root in the fall.

The *Solonaceae* family has three members which have neat plant habit and colorful fruit which blend well in ornamental plantings. The determinate cultivars of tomato would be at the head of the list for edibility but peppers and eggplant have more compact habits. Actually some of the chili pepper types are more colorful than tomatoes. Eggplant with its large dark purple fruit provides a different color.

Another plant, a herbaceous perennial this time, that can provide an edible product is that glorified thistle--the artichoke. It does have spiny leaves and is large but again it provides textural contrast in a planting. Winter protection of the roots will be necessary after the tops die down in the fall.

Yes, it is possible to grow edibles among your ornamentals but it is also possible to grow ornamentals which have an edible product. However, some of these products may require developing a taste for them or require considerable effort to obtain enough for a meal. But it is probably better to grow plants about which there is no worry if young children decide to sample the fruit.

Many trees can produce an edible product besides providing climate control and aesthetic beauty. There are several maples besides the sugar maple - *Acer saccharum*, which have been tapped for their sap to produce syrup or sugar. Our native bigleaf maple - *A. macrophyllum*, is on this list but other species included are canyon maple - *A. grandidentatum*, box elder - *A. negundo*, Norway maple - *A. platanoides*, sycamore maple - *A. pseudoplatanus*, red maple - *A. rubrum* and silver maple - *A. saccharinum*. Another tree which is tapped for its sap in the spring is one of the hardiest *Eucalyptus*, the cider gum - *E. gunnii*.

Preserves and jellies have been made from the fruit of a number of trees including saskatoon serviceberry - *Amelanchier alnifolia*, hawthornes - *Crataegus* sp., Russian olive - *Elaeagnus angustifolia* and black gum - *Nyssa sylvatica*.

Among the fruits for which acquiring a taste or starting to eat them as a child are the paw paw - *Asimina triloba* which is fairly strong flavored and seedy but is good blended into a fruit salad. Fruit of the kousa dogwood - *Cornus kousa*, is eaten in north China but the fruit of individual trees varies in size and taste. Corneliancherry dogwood - *C. mas*, are quite tart but processed juice from them can be found in gourmet food stores imported from Yugoslavia. The American persimmon - *Diospyros virginiana*, is supposed to require frost before it is edible and the fruit on some plants is very small. *Idesia polycarpa* is supposed to be eaten in Japan but would require at least two trees since there are male and female forms. The mulberries white, black, and red - *Morus alba*, *nigra*, and *rubra*, all produce fruit on large coarse leaved trees.

An unusual use of a tree product is a tea made with the dried flowers of the European linden - *Tilia cordata*.

Two of the less usual fruit trees which are attractive enough to plant as ornamentals are the fig - *Ficus carica*, and the Oriental persimmon - *Diospyros kaki*. The large deeply cut leaves of the fig have a tropical look while the large persistent orange fruit of the Oriental persimmon hanging on the bare branches look like Christmas tree ornaments. Since fruit production on these trees is marginal in the Willamette Valley they might not ripen in the Puget Sound area.

Seeds are the edible product of a number of trees used as ornamentals. The seed of the monkeypuzzle tree is large and is eaten by the Indians in Chile. Cones do form on old trees but seeds seem to be rare in the Pacific Northwest. The beeches, American and European *Fagus americana* and *F. sylvatica*, have good tasting but small seeds if the squirrels do not eat them all. The female *Ginkgo* is shunned because the pulp surrounding the seed is smelly but the seed is edible. Of course to get *Ginkgo* fruit, trees of both sexes must be in the area. Acorns of the white oak group are supposed to be edible with the right processing. The excess tannin must be leached out before they are palatable and probably is not worth it from the acorn bread I tasted. Another of the more questionable edible seeds is that of the Oregon myrtle - *Umbellaria californica*.

Several of the pines produce seeds large enough to be worth the effort of cracking them. The pinyon pines, *Pinus cembroides* - Mexican pinyon pine, *P. c. edulis* - pinyon pine, and *P. monophylla* - singleleaf pinyon pine are natives of the southwestern part of the U.S. Two northwest species with edible seeds are *P. flexilis* - limber pine and *P. lambertiana* - sugar pine. Seeds of two European pine species, *P. cembra* - Swiss stone pine and *P. pinea* - Italian stone pine are often available shelled in health food stores.

There are nut trees which are attractive enough to plant as ornamentals including the English walnut - *Juglans regia*, with its smooth grey bark. The early blooming greenish yellow catkins of the filbert - *Corylus avellana*, add interest to the bleak winter scene in the Pacific Northwest but to get fruit two different cultivars must be planted. At least nuts will be produced by both plants. It is too bad that filberts are so difficult to propagate as there is a cultivar 'Rote Zeller' with bright orange red catkins.

Available to a limited extent is 'Purple Avalon' with purple leaves. Less well known is the Turkish hazel - *Corylus corlurna* and medium sized pyramidal shaped tree which produces a smaller but stronger flavored nut resembling the wild hazel.

Preserves and jellies can be made from the fruit of several of the shrubs used in Pacific Northwest landscaping. The barberry family is represented by *Berberis buxifolia* - Magellan barberry, *B. darwinii* - Darwin barberry, *Mahonia aquifolium* - Oregon grape, and *Nadina domestica* - heavenly bamboo. The Rose family members with a dual purpose include the Japanese flowering quince - *Chaenomeles japonica*, India hawthorn - *Raphiolepis indica* and rose - *Rosa* sp. The *Ericaceae* used for this purpose as well as for landscaping are *Gaultheria shallon* - salal and *Vaccinium ovatum* - box huckleberry. The Western elderberry - *Sambucus caerulea* has additional uses for pies and wine.

The name of the spice bush - *Lindera benzoin* was derived from the use of the ground dried fruit as a substitute for allspice. The leaves have also been used for a tea.

A shrubby fruit plant which should be used more in landscapes is the highbush blueberry - *Vaccinium corymbosum*. Some cultivars develop brilliant red fall color. A new low growing cultivar 'Tophat' developed at Michigan State University only grows two feet tall but has fruit as large as the older blueberry cultivars.

Ground covers can also contribute to the edible garden. The Coast wild strawberry - *Fragaria chiloense*, makes an attractive ground cover as do some of the standard fruiting cultivars. Wintergreen flavor originally came from the plant *Gaultheria procumbens* - wintergreen, whose red berries and young leaves have the flavor. Cranberry - *Oxycoccus macrocarpus*, can be an attractive fine leaved ground cover while producing bright red fruit. Lingonberry - *Vaccinium vitis-idea* is another evergreen ground cover whose fruit is prized in some countries. Not usually eaten in this country but eaten by the natives in its homeland is the fruit of *Pernettya mucronata*. The brightly colored berries are large enough for easy picking but are rather insipid tasting. The black fruit of the crowberry - *Empetrum nigrum* is also eaten by some people.

Some of the domestic grape cultivars like 'Schyler' develop good fall color besides producing good blue grapes and could be used in place of a wisteria or other vine which does not produce an edible product. Two Actinidias - *Actinidia arguta* - Bower Actinidia and A. chinensis - kiwi Fruit will fruit in the Pacific Northwest at least in the warmer areas. *A. arguta* has smaller leaves without pubescence and the fruit is smaller and without pubescence. For flavoring your tea you can pick and dry the flowers of *Jasminum officinale* - common white jasmine.

We in the Pacific Northwest are fortunate that we can grow a broad selection of plants which are both ornamental and produce an edible product.

HORTICULTURAL THERAPY

Joan Burlingame
Recreational Therapist
Children's Orthopedic Hospital; Seattle, WA

My grandmother always says that to use horticulture as a therapy is to "create a spot of beauty" within a person. I am lucky enough to have Alice W. Burlingame as my grandmother, and it was she who helped found, in this country, the idea of using horticulture as a therapy back in the early 1950's. What is horticultural therapy? What is therapeutic about it? And, what is happening in the field of horticultural therapy now, thirty years later?

Horticultural therapy is a therapy which uses plant life and nature to achieve a desired, health-oriented goal. The therapy can include activities which encourage a stroke patient to use an affected limb or which helps boost self-esteem in a child with a birth defect like spina bifita. Caring for a group garden helps decrease the agitation level in prisons that have horticultural therapy programs and also promotes opportunities for psychiatric patients to learn appropriate social skills.

In essence, horticultural therapy is for everyone. As you go to your garden and work, the effects of stress on your body should decrease and the exercise helps tone your muscles. Webster's Dictionary tells us that for something to be therapeutic it must "serve, take care of, treat medically" that which needs healing. While I would not prescribe horticultural therapy as the only treatment for a patient with leukemia, nor for a patient with schizophrenia, horticulture, combined with other therapies, is a means to achieve a total health balance.

Part of each day at Children's Orthopedic Hospital in Seattle I run a two-hour long group activity. The participants are of various ages, usually under 10 years of age and of diverse medical diagnoses. Some typical diagnoses would be: meningitis, "failure to thrive," cancer, appendicitis, various heart disorders requiring surgery, birth defects, and injuries resulting from car accidents. It is during the group activity time that I test out different horticultural activities to determine their age appropriateness and therapeutic value. There are seven questions I use to determine if an activity is of therapeutic value:

1. Is it safe? Not only are bugs and poisonous plants a concern, but what about germs in the soil? Most of my patients are in a weakened condition and exposure to germs and bugs in soil, even soil which has been "sterilized," is not good therapy. At Children's, we are working on ways to really sterilize the soil and still allow plants to grow.

2. What ages is the activity appropriate for? A one-year old who spends most of his time in the hospital would love activities where he can feel and mouth various nature finds, as his body is yearning for the stimulation input. But a box of soil would be better for the four-year old who needs to pound and dig to vent her anger, anger which arises out of painful medical treatments she doesn't understand.

3. Is it educational? Piaget, the child psychologist, feels that one thing, or task, builds upon another. Horticulture provides an excellent opportunity for the children to learn about textures, special principles (in, over, behind), colors, associations (an apple comes from a tree), as well as the specific name and characteristics of any given plant.

4. Is it a good medium of expression? We use "Plant Medical Play" to observe a patient's reactions to his hospitalization. The patient dons a mask and gown and becomes the "doctor." I am a "nurse" and a plant is the "patient." By asking the "doctor" to explain why the "patient" is getting a shot or having an I.V. put in, I can gain more insight into the child's understanding of his hospitalization and help correct any misconceptions. (A typical misconception would be that the patient gets a shot because he is bad.)

5. Is it stress reducing? Activities that take the child's mind off being in the hospital are a good start at reducing the stress level. Better yet, if I can get the family in on an activity, it helps to produce a more natural, home-like interaction. Activities like making pine cone and peanut butter bird feeders or harvesting our sunflowers work well with family groups.

6. How can this activity provide for increased self-esteem? A hospital is a place where your privacy and options to make choices about even the little things in your life are almost nonexistent. You'd be surprised how much motivation is developed and self-esteem created when a child can show off his own 11" by 11" indoor garden patch in which he decided what to plant and for which he is responsible.

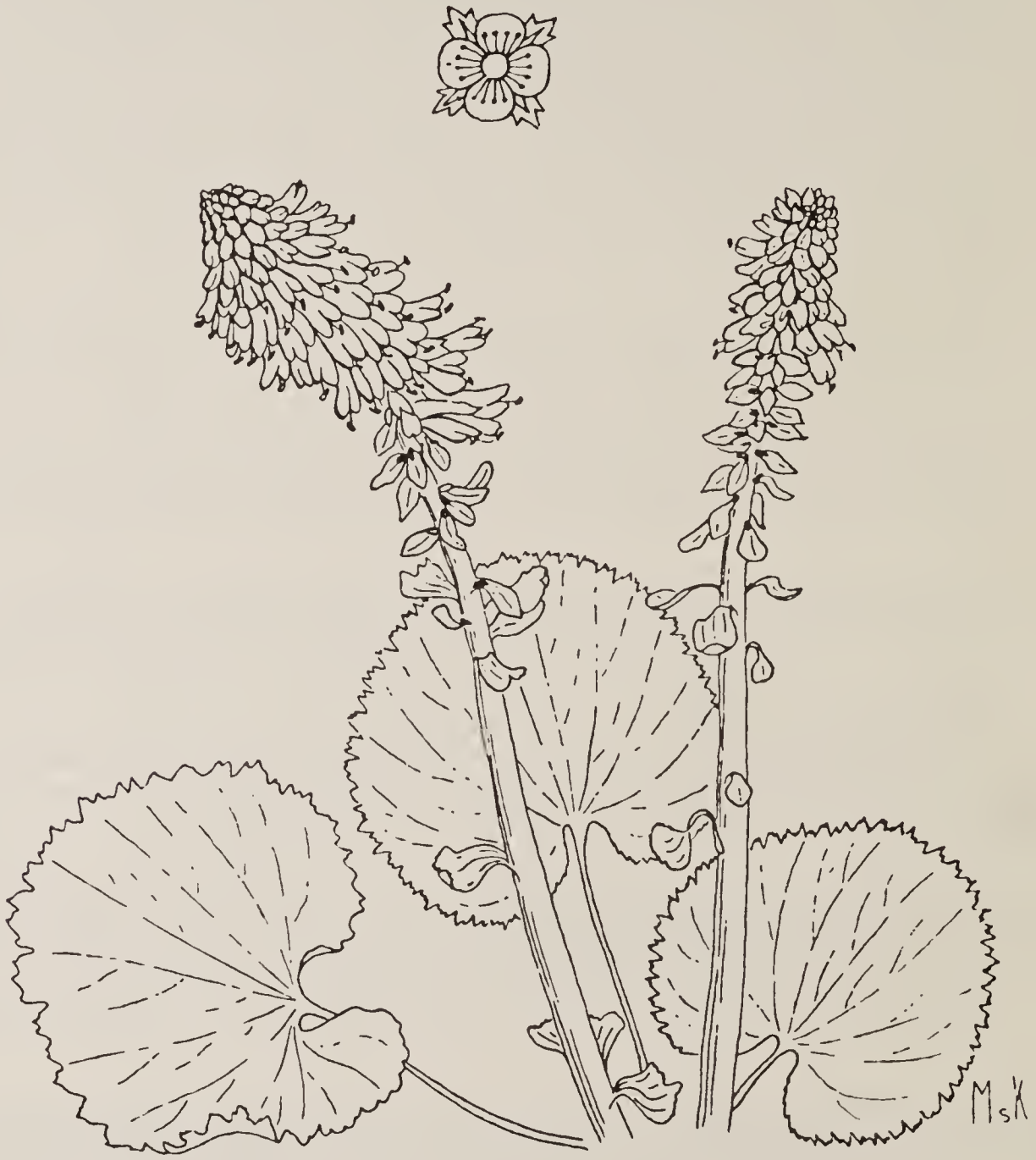
7. What kind of physical movements are required for the activity? Many of the children require physical therapy. I like to develop activities which use the same movement as in physical therapy but which are enjoyable to carry out, with an end product as a reward.

The field of horticultural therapy has come a long way since the 1950's. The National Council for Therapy and Rehabilitation through Horticulture (NCTRH) is the professional organization which helps promote quality programs and new applications of therapy through horticulture. There are numerous colleges offering everything from an Associates Degree to a Ph.D. in horticultural therapy. (Edmonds Community College offers coursework in horticultural therapy.) And people are accepting this relatively new profession with open arms. Last year the national job bank located in Topeka, Kansas, listed 500 more job openings for horticultural therapists than it could fill.

The people who are the recipients of this therapy are also benefiting. One vocational rehabilitation program which uses horticultural therapy to train mentally retarded adults maintains part of the federal grounds in

Washington D.C. The disadvantaged youths at Boys Town, many of whom are from large cities, get to spend part of each week at the Boys Town farm or running through the wonderfully kept grounds.

Horticultural therapy serves as a method to increase enjoyment as well as health. It helps take care of the long hours and stimulus deprivation children encounter when hospitalized. And it helps treat those patients who need exercise and the motivation to get better. Most of all, horticultural therapy is fun.



Synthyris missurica
Scrophulariaceae
Northwestern United States

Mareen S. Kruckeberg
Seattle, Washington

N.O.H.S. NOTES
Summer 1981
Supplement to Horticulture Northwest

Northwest Ornamental Horticultural Society

Summer Garden Tour and Tea

Wednesday August 5, 1981 - 1:30 to 3:30

Meeting Place - St. Thomas Church parking lot (Shuttle to gardens)
1:30 PM 84th N.E. and N.E. 12th, Bellevue

Gardens - Dr. Edwin C. Brockenbrough - A real collector's garden. A rhododendron propagator and bonsai specialist, a treat to see.

Mr. D.K. MacDonald - This garden is especially interesting and beautiful at this time of year as the perenniels and annuals are at their peak - a blaze of color. Tucked in one section of the garden is a Northwest native garden.

Price: $10.00 includes tour of gardens with tea served in the MacDonald cabana. ($7.50 donation to NOHS)

Check to: Mrs. James R. Scott, NOHS Garden Tour
9103 Lake Washington Blvd. N.E., Bellevue, WA 98004
No tickets sent; reservations limited;
No cancellations after August 1, 1981

Membership Application
NORTHWEST ORNAMENTAL HORTICULTURAL SOCIETY

Policy:
To give financial support to the University of Washington Arboreta Program and to other horticultural education endeavors.

Membership activities encompass:
Lecture Series, Study Groups, Annual Fern and Plant Sales, Tours of gardens of horticultural interest, Horticultural Journal.

(Please fill in form as you wish information to appear in yearbook.)
Mr.☐ Mrs.☐ Ms.☐ Miss ☐

Name _____ (First Name) _____
Address _____ Phone _____
City & State _____ Zip _____
New Member (date) _____ or Renewal (date) _____

(Membership renewals will come due January, May and September, whichever month is closest to date of Membership Application.)

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Seattle, Washington 98195

TELEPHONE: 543-8800

TYPES OF MEMBERSHIP: (Please check one)
☐ Life $500.00
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☐ Contributing ..... $25.00 to $50.00
☐ Active (Individual) $15.00
☐ Group or Family $20.00
☐ Nursery (Member Listing) $20.00

COMING GARDEN EVENTS

SUMMER 1981

June 19, Friday 10:00 A.M.-9:00 P.M. June 20, Saturday 10:00 A.M.-4:00 P.M.	NOHS FERN SALE. The event of the year for Fern lovers. Approximately 90 varieties of Ferns for your garden. Experts on hand to answer your questions. Crossroads Mall.
June 19, Friday June 20, Saturday June 20, Sunday	Gesneriad Society Show. Public invited. Crossroads Mall.
June 24, Wednesday	Explorers Walk of Washington Park Arboretum. See note at end of calendar.
July 11, Saturday July 12, Sunday	Valley Rose Show. Public invited. South Center Mall.
July 12, Sunday 1:00 P.M.-4:00 P.M.	Greater Seattle Fuchsia Society Display sponsored by The Friends of the Conservatory, Volunteer Park. No charge.
August 5, Wednesday 1:30 P.M.-3:30 P.M.	NOHS Summer Garden Tour and Tea. Limited to members and their guests by advance reservation. $10 per person.
August 7, Friday 1:00 P.M.-9:00 P.M. August 8, Saturday 10:00 A.M.-7:00 P.M.	Seattle Begonia Society and the Greater Seattle Fuchsia Show. Lake City Community Center - 12531 28th Northeast. Plants will be offered for sale. No charge. For further information please call 523-6876.
August 9, Sunday 1:00 P.M.-4:00 P.M.	Seattle Dahlia Society Display sponsored by the Friends of the Conservatory at the Conservatory, Volunteer Park. No charge.
August 26, Wednesday 4:00 P.M.-9:00 P.M. August 27, Thursday 10:00 A.M.-5:30 P.M.	Snohomish County Dahlia Society Annual Show. Floral Hall in Forest Park, Everett, Washington. No charge.

August 29, Saturday 10:00 A.M.-5:00 P.M. August 30, Sunday Noon-5:00 P.M.	Bonsai Show. Puget Sound Bonsai Association and Kelly Nishitani Arboretum Unit show in conjunction with the Seattle Art Museum exhibit, "Treasures of Asian Art" from the Idemitsu Collection. Seattle Art Museum Pavilion, Seattle Center. $1.00 admission to the Art Museum Pavilion.
August 29, Saturday 10:00 A.M.-all day August 30, Sunday 10:00 A.M.-all day	Evergreen Rose Show Northgate Mall
August 29, Saturday 10:00 A.M.-all day August 30, Sunday 10:00 A.M.-all day	Seattle Dahlia Society 24th Annual Show Northgate Mall
August 29, Saturday 10:00 A.M.-9:00 P.M. August 30, Sunday Noon-5:00 P.M.	Washington State Dahlia Society 71st Annual Show. Tacoma Mall Shopping Center Tacoma
September 13, Sunday 1:00 P.M.-4:00 P.M.	Greater Puget Sound Bonsai Society Display sponsored by the Friends of the Conservatory at the Conservatory, Volunteer Park. No charge.
September 15, Tuesday 10:00 A.M.	Washington Park Arboretum. General orientation session for Guides for the native walk and also for general Arboretum Guides. Arboretum Green House For further information, call 543-8800.
September 15, Tuesday 7:30 P.M.	Seattle Begonia Society Meeting. Program on ferns. Bethany Green Lake Lutheran Church. 7400 Woodlawn Avenue Northeast (Greenlake) Public welcome. No charge.
Every Fourth Wednesday 10:00 A.M.-Noon	Explorers' Walk of the Washington Park Arboretum. Meet at the Arboretum Parking Lot.

WELCOME NEW MEMBERS

BACKUS, Frances A. 885-6533
2836 - 134th NE, Bellevue 98005

BOBBITT, Van
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BURLINGAME, Joan 255-0272
17040 124th SE, Renton 98055

BURNS, Usha (Mrs. John M.) 328-0636
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REMOVE FOR YEARBOOK

A CLIMBING HYDRANGEA

Brian Halliwell, Royal Botanic Gardens, London, England

Hydrangea is a genus of perhaps 90 species which occur mostly in Asia, with many in South America and a few in North America. Species can be either deciduous or evergreen and, whilst most are shrubs, a few will make small trees and some are climbers.

Hydrangea petiolaris is the best known of the climbing species and is probably the only one at all common in cultivation. It is part of the forest flora of Japan, especially in the northermost island of Hokkaido. Here it can reach 80 feet in height and develop a main stem which hangs from the tree tops as thick as a man's arm.

In juvenile growth, stems are green and on their undersides produce roots which attach themselves to some kind of support: a rock face or tree trunk. On current season's growth, leaves are produced in opposite pairs. These, which are on long petioles, are elliptic or heart-shaped with an elongated terminal point and a toothed margin. The plant is deciduous and the leaves take on dull yellow fall colour before they are shed. Once the young shoots have reached the light above the forest canopy and no longer have support, they change to the adult stage. Here the young shoots no longer have roots; others come away from the main framework and these begin to branch. As these shoots age they develop a thin brown bark which peels and on the really old stems this can be an attractive winter feature. On these branching side shoots terminal flowers develop in late May and June. There is a flat flower head up to 10" across which, like all species of *Hydrangea,* is made up of sterile and fertile flowers. A marginal row of the sterile flowers which resemble petals surround a mass of tiny cup-shaped fertile flowers which are a dull, rather dirty white. It is the sterile flowers which give them colour and these are a greenish white. The amount of light that reaches them determines whiteness and there seem to be clones where these sterile flowers are whiter than others but none are a pure or glistening white. These remain intact after fertilization has taken place, whilst seed is ripening and even after it has been shed. Gradually there is a change of colour from greenish white to green and eventually they become brown and so the flower heads remain on bare stems throughout the winter, being shed only as new growth begins in the spring.

In a garden it is usually planted in shade but will do equally well in full sun in a cool, moist, lime-free soil. As in nature, it can be grown up the trunk of a large tree on which it will have no adverse effect. More often, though, it is planted against a wall, especially one facing north, which is not the most suitable place for climbers.

When conditions suit it, this plant is a strong grower, so ensure that there is plenty of wall space for it to cover. Remember that soil at the base of a wall or tree is often poor and always dry. To give a good start, take out a fair sized hole, half filled with moist peat, leaf mould or compost, replace the soil and tread to firm. Plant a nonrootbound plant from a container in early spring just before new growth commences. Following planting and throughout the first growing season, water at regular intervals

until the plant has established. Sometimes *Hyrdrangea petiolaris* can sit for a year or more making almost no growth before it suddenly takes off. It sometimes happens also that the roots on the new shoots will not attach themselves to their support; this is especially so to walls which may have been treated in some way and to wooden fences. If this happens, cut back the young growth to one pair of buds in March and push the resulting young growth against the wall; this may be repeated in successive years until the roots do attach themselves. In the early stages of growth the gardener should direct the shoots in the desired direction, for if the shoots are pulled away from their support so that the attaching roots are broken, they will not readhere.

Stumps of trees in a garden can be unsightly and a gardener will wish to hide them in some way; *Hydrangea petiolaris* can be used to do this. Again, prepare some good soil close to the stump and after planting, water until established. Young shoots will quickly cover the stump and when they have no more support will change from the juvenile to the adult. Once the stump has been covered to the gardener's satisfaction, pinch back any extension shoots. Having reached the adult stage, a low sprawling bush will develop, bearing no resemblance to a climber. Rocks or rock outcrops can be treated in the same way and if planted against a low wall the result will be a flat-sided sprawling shrub.

Propagation is easiest if seed is available. This should be thinly sown in a sandy lime-free compost in February or March and placed in gentle heat until germination takes place (this can be very variable depending on age and quality of the seed). The seedlings should be potted singly as soon as big enough to handle or allowed to stay in their seed container for a year and then potted. Cuttings are not always easy to root. Take these off from extension growth in late July as growth is beginning to ripen; take off the basal pair of leaves and dip into a rooting compound. Cuttings taken from young plants root more easily than when collected from old ones. If the plant is completely adult, cut one of the main stems hard back to within a few inches of the ground and take your cuttings from subsequent growth. Layering can take place if there are young shoots coming from or near ground level. Carry out in March before growth commences and remember that growth is brittle; detach rooted layers a year later.

HELP WANTED

The membership committee solicits the help of all members in maintaining accurate records of NOHS members by notifying the committee when:

Any member changes address.
Any member dies.
Any member marries or changes name.

Please help.

Willis Collins, Membership Chairman

WHY IS A ROSE RED?

Mike Hayes, Bellevue, Washington

Why is the rose red? Why isn't the daffodil red? What is it that happens to the leaves in the autumn?

What is color?

As we know from our own reactions to color, it can be subjectively perceived. Psychological studies have been extensive. Our own choices and preferences, often rooted in lost memories, express themselves in our kitchens, clothes, and the furniture in our homes. Our gardens blaze with the choices we make, sometimes for botonical interest, but often for reasons that please our eyes, and thereby feed our hungry souls.

I hope that by tearing apart the technical production of color, I will not spoil your enjoyment of it. For me, the awareness of the complex miracle of natural order adds to my pleasure. I hope I can share this with you.

So, what is color? All colors are part of the effect of light. The differences we see can be explained using the theory of light wave lengths. Remember the prism and the rainbow?

The spectrum of visible light ranges from the short-length violets and blues across green and yellow, to the long-length oranges and reds. The very short waves, called ultra-violet, and the very long ones, called infra-red, are not visible to our eyes. They are important to all living things, but they do not play a part in our perception of color.

In the rainbow, we see the visible range of wave lengths, refracted and separated by the drops of water in the air. In other wirds, the mist is acting like a prism.

By contrast, a field of flowers shows us a rainbow of color for a very different reason. This, too, is reflected light. But it is reflected because of pigment in the plants.

Pigments are most familiar to us in paints. When we buy paint, we buy a can labeled BLUE or YELLOW. What we actually roll onto a wall is a substance which absorbs all light, except the specific blue or yellow. So, the can labeled DESERT SAND is a carefully balanced formula of substances which absorbs a range of wave-lengths, reflecting a precise bit of light, or color, for our eyes to read.

The colors we see in leaves and flowers are produced by similar complex chemicals. Each color we perceive is specific to the plant, and no species is alike in its color production.

Now for the basic zoology lesson: Basic is cells. In plants, simplified cell structure goes like this: Part one, the outer wall, mostly a kind of cellulose, its purpose is to enclose and separate each cell from the next. Part two, a thickish layer called protoplasm. For our purposes, the most

important thing about protoplasm is that it contains structures called plastids. The protoplasm is contained in a membrane, which surrounds the center of the cell. This center is filled with cell sap, mostly water with chemicals dissolved in it.

The cell structure has everything to do with color in plants. The pigments which produce colors in plants are in three groups, each found in one of the three parts of the cells. Certain colors, many of the brightest flower colors, occur in the cell sap. The second group, usually in oil drops, is found in the plastids in the protoplasm. One example is carotenoid, the orange of carrots. The third group is found in cell walls.

Green is the most common color in the plant world. The visible range is endless, and provides the Northwest gardener with her constant element. Basically, though, all greens are produced by chlorophyll. It is a pigment, contained in the plastids in the protoplasm. Chlorophyll is found in quantity in leaves, but also in stems, fruits and seeds.

The bluish or greyish color, known to us as glaucous, is almost always a surface phenomenon: hairs or wax-like covering on the outside of leaves. This covering changes the refraction of the light, and produces the softening and reflective quality. Many glaucous plants originated in su-ny places, and may have evolved this quality as a protection against heat and evaporation.

The other common color in nature is brown. Brown pigments are often found in cell walls, and are formed when plants are aging or damaged. In these cases, brown is like rust, a function of oxidation. Oxidation is what happens when you cut an apple open. The brown appears when oxygen combines with the chemicals released from the broken cells where the knife cut through. Much the same thing happens to leaves in the autumn. The aging of the leaves naturally breaks down the cell structure.

In some cases, of course, brown is a natural and healthy color: brown bark, brown spore cases on ferns.

Yellow flowers are colored by a variety of pigments. For instance, yellow primroses are colored partially by carotenoid plastics, partially by pigments in the cell sap. The carotenes in the protoplasm are often the chemical color in pollen grains.

When a plant is deprived of light, the yellow color is caused by the arrested development of the chlorophyll. The yellow in autumn leaves is part of the aging process. As the cells break down, they release the yellow pigment in the protoplasm.

Orange can be produced by simple pigments, the carotenoids as in carrot, and also in beautiful ripe tomatoes. The orange in the trumpet of some narcissi is a similar pigment. But the orange of the orange skin is a fascinating mix of colors and cells. Some cells carry a yellow oil, some cells have yellow and red plastids, some carry red cell sap, and the whole is covered by a yellow wax.

Nasturtiums are a good example of flowers whose range of color is linked but limited to the range of pigments in the cells. The cells carry some yellow plastids in the protoplasm, and red pigment in the cell sap. The genetic manipulation of these chemicals produces the range of color, some strongly yellow, some very red, and the whole range in between.

The important colors produced in the cell sap are called anthoxanthins and anthocyanins. The complex names are not important, but the nature of the pigments is. They are water-soluble pigments in a wide range of strong colors. The anthoxanthins are pale ivory to deep yellow. The anthocyanins range from scarlet to magenta to purple and blue.

The most usual colors are the reds, such as those in geraniums, peonies, and the red, red rose, to say nothing of all the red rhodendrons. Next spring, when you see The Hon. Jean Marie de Montague blooming everywhere, you can say, "Oh, look at all the flowers with red cell sap!".

Many of the blues, such as those in delphinium and gentians, are produced by anthocyanins in the cell sap. Since they are related chemically to the reds, many a specie will have a red to purple to blue range of color. Think of petunias, for instance, or phlox.

One of the more obvious examples if the hydrangea. When anthocyanin is extracted from a plant, it will turn red in acid, blue in alkaline. An old trick was to sprinkle iron or alum or ashes around the plant to change the colors from pinks to blues. I always thought this was done to modify the acidity of the soil, but it seems that this is not always so. Often the additions are minerals which actually change the chemical in the cells, thus changing the color.

The red color in beets is an anthocyanin in the cell sap, and so is the red of a cherry and the purple in grape skins. The red spring growth of Pieris and some Quercus is colored by red cell sap. It is thought that the color may protect the young growth from ultraviolet light. As the leaves mature, the chlorophyll gradually builds up, overcoming the color showing in the cell sap.

The reds and scarlets of the beautiful New England fall are a combination of processes. The natural process of leaf growth starts in the spring, timed by Mother Nature, through the slow lengthening of the hours of daylight. The pale green of spring growth is caused by the early stages of chlorophyll development, more yellow than green. As the days lengthen, the chlorophyll matures and the green intensifies. As the days again shorten, the chlorophyll begins to break down. The cool, frosty weather triggers the development of the red chemicals in the cell sap, and suddenly the hardwood forest is ablaze with color. When the weather cooperates, the shortening days cause the dormant tree to drop its still-brilliant leaves, and the woods become carpeted with a rug of many colors.

White is another fascinating phenomenon of nature. There are white pigments, pigments which actually reflect all light. The eye does not separate the light and sees white. The Shasta Daisy, for instance, has white rays surrounding the florets. These rays are colored by white pigments in the cell sap.

But, in other cases, white is produced by a physical structure. This is often the result of air spaces, not pigment, in the cell structure. Like snow and the foam on the ocean breakers, the white you see is the total light reflected from empty spaces. This is the reason for white chrysanthemums and water lilies. And here is something to contemplate: The bark of the aspen tree is white because of air spaces in the cells in the bark.

There are many intriguing special effects in both plants and their flowers, caused by both chemical effects and physical structure. The velvet sheen of many blossoms is caused by hairs or projections, many of which you can see with a magnifying glass. Look at the surface of a pansy the next time you see one which says "velvet."

Shiny leaves often have a tight surface layer of very smooth cells. And some flowers are very shiny. The common buttercup (*Ranunculus acris*) has a layer of cells filled with an oily yellow solution. This is backed by a layer of cells packed with white starch. The result is the glazed and highly reflective surface which brightens the spring meadows.

The physical structure of the petals can cause variations in the intensity of colors. Pale colors may be because of dilute colors in the cell sap. Or pigment cells can be surrounded by colorless tissue, or air spaces. A good example of this can be seen in several of the clematis blooms. Only near the veins are the color cells tightly packed, and here the colors are intense. The other areas of the petals are paler.

Flowers are the specialized organs of plants for the propagation and dispersal of seeds. Wind pollination is a most common method of reproduction, especially in trees. These plants tend to have inconspicuous blossoms, but abundant pollens, as allergy victims will attest.

When we find plants relying on insects for pollination, we find plants with color. These plants have survived through generations by attracting insects, which either transfer pollen to ovary within the individual blossom, or pollen from one blossom or plant to another within the same variety. These plants attract the insect initially by sending a color signal, "Here we are... come over here." In many cases, the flower also produces nectar, which encourages the insect to call again, or to reach deeply into the center of the blossom, thus transferring pollen from stamen to ovary.

Flower forms vary infinitely. As you watch the progression of bloom in your garden, you will begin to see the association between the shape and color and the type of insect attracted to them.

Bees have a very special ability. Since they are superactive insects, they are most useful pollinators. Bees are sensitive to ultraviolet light and see the shortest portion of the light spectrum. A bee's eyes do not pick up the red end of the spectrum, but they "see" short waves which we do not see. The color known as "bee purple" is not purple to our perception. It is a range of color beginning in the orange part of the spectrum and ranging through the ultraviolet. The flowers of the pink and purple heathers will appear blue to bees. Many yellow and white flowers have an ultraviolet component, making them appear purple to bees.

Not so much is known about the vision of other insects, but many species of flies are known to read ultraviolet. Fles are important pollinators of flat, widespread blossoms, where short-tongued insects can reach the nectar. Some butterflies appear to read the red colors. Since butterflies have long, tubular mouth parts, they tend to visit blossoms with nectar at the base of a trumpet-shaped portion.

Among the birds, hummingbirds are important pollinators for certain plants in the Americas. But the most useful function of birds is the transfer of the ripened seeds. The green color of unripe fruit hides it among the leaves. But when the seed is ready, the color develops in the ripened fruit. And, with the color, comes the taste which attracts the birds to eat and spread the seed.

Modern horticultural developments have changed so many familiar plants. In our garden hybrids, we have propagated plants to please our eyes even more than their ancestors may have. Certainly, we often change and enlarge bloom and color. I wonder if the insects enjoy them as much as we do.

I realize that this has been a technical kind of report. But next year, when Jackson and Perkins introduces a new rose of superb color, perhaps we'll appreciate, even more, the miracle which produces that color.

Bibliography: Proctor, John and Susan. Color in Plants and Flowers, Everest House Publishers, 1133 Avenue of the Americas, New York, New York, 10036, 1972

CHEILANTHES FEEI

Sue Olsen, Bellevue, Washington

Cheilanthes feei is a tufted little fern with fronds springing up to about eight inches (20 cm) from a short creeping rhizome. The rhizome has distinctive scales that are cinnamon-orange in color with a black stripe down the center. The bipinnate to tripinnate fronds are decorated with sparse white hairs on the upper surface and dense rusty hairs on the underside. The stripe is dark brown. Typically, it is a fern of the drylands with a preference for limestone or calcareous cliffs. Lacking such a situation, it is a very difficult plant in cultivation and not recommended for areas with wet winters.

Tidbits by Ladybug

NOHS GOES INTERNATIONAL

When the Northwest Ornamental Horticultural Society was invited to participate in the international publicity stands at the 5th International Rock Garden Plant Conference, Nottingham, England, April 13 - 16, 1981, your board of directors felt that it was a tremendous opportunity for our organization. We felt that not only would we be doing a presentation for this very special occasion (an international conference held every ten years in Great Britain) but also it could form a permanent display to be featured at our plant sales, lectures and other educational activities in which NOHS becomes involved.

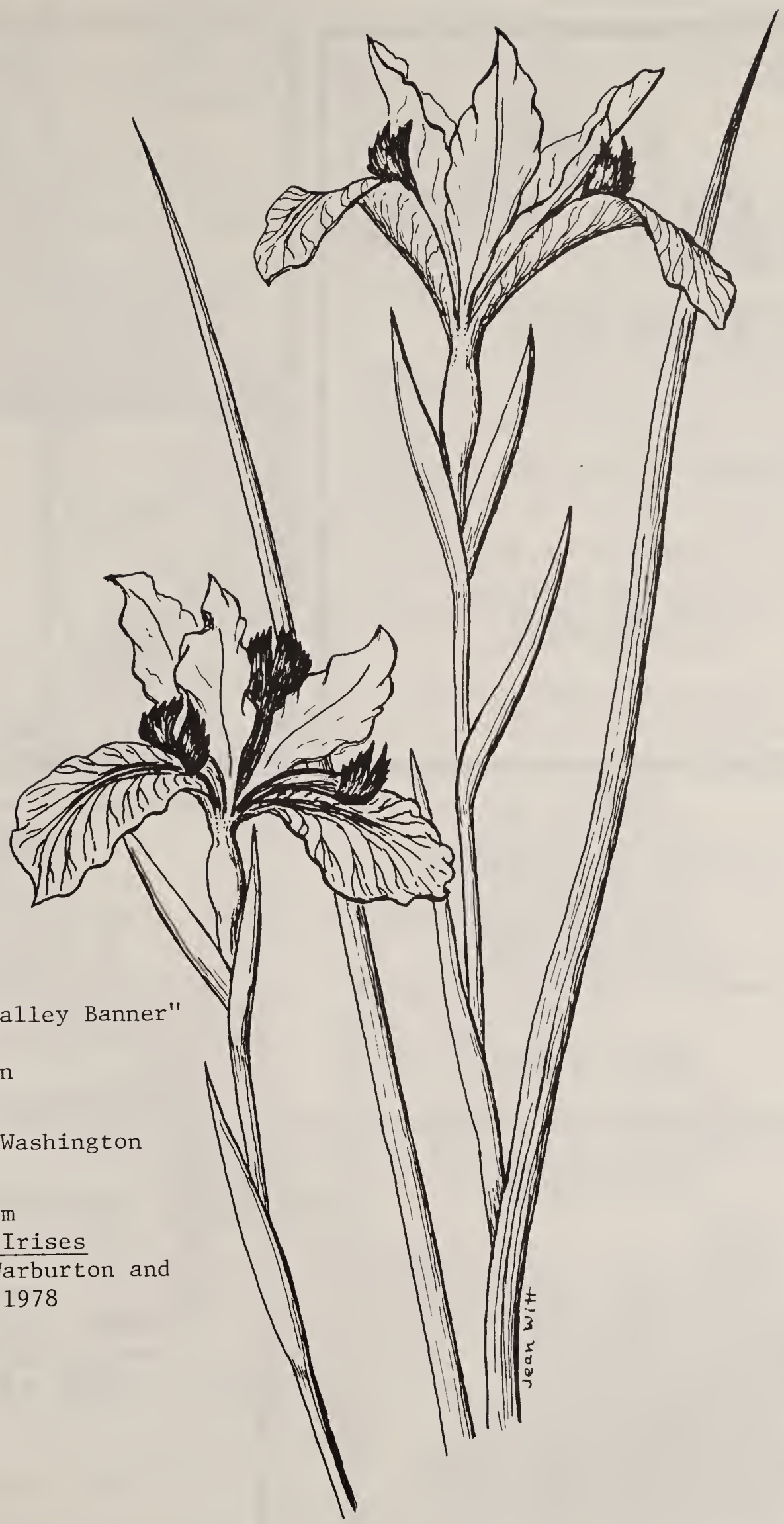
A committee was formed, including Mareen Kruckeberg, Dennis Thompson, Jo Hotson, Vernette Cunningham and myself, to determine the type of display we would have and how we would present it. We felt that since one of the unique features of our publication, Horticulture Northwest, is our lovely original botanical drawings contributed by our members, we wanted to feature these drawings, selecting plants native to North America of rock garden stature and interest.

To best set off the black and white pen and ink drawings, a black background was chosen with a gray matting used to frame the illustrations. The black-on-gray calligraphy was done by Vernette Cunningham. The display is composed of four folding panels, 22" x 30-1/2", and includes 12 drawings of varying sizes, each with identifying card with plant name and family, geographic distribution and artist's name. The following are the drawings included:

Dryas octopetala - Sally Dickman
Dryas drummondii - Sally Dickman
Lithophragma parviflora - Rosemary Burnham
Zygadenus venenosus - Rosemary Burnham
Saxifraga tolmiei - Sally Dickman
Xerophyllum tenax - Baldassare Mineo
Asarum hartwegii - Mareen Kruckeberg
Synthyris missurica - Mareen Kruckeberg
Iris tenax 'Valley Banner' - Jean Witt
Vaccinium macrocarpon - Mareen Kruckeberg
Cheilanthes feei - Mareen Kruckeberg
Loiseleuria procumbens - Sally Dickman

Copies of our journal, programs and membership forms were available for the 700 international conference participants to view. Mr. J. A. Colmer, conference Vice-Chairman wrote: "Thank you for bringing that marvelous publicity material so far for us all to enjoy. The art work was simply beautiful.."

Sallie D. Allen, Chairman
Display Committee



Iris tenax "Valley Banner"
Iridaceae
Western Oregon

Jean Witt
Seattle, Washington

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